

REMARKS

Claims 1-7, 9-17, 19-23 and 25-50 are currently in this application with claims 1, 3, 4, 6, 7, 11, 16, 20-23, 33, 36-38, 40-42, 45-47, and 49-50 amended and claims 8, 24, and 51-53 cancelled herein. No new matter has been added by this amendment.

Initially, the office action objects to the specification for failing to reference Figs. 1, 8 and 8A. Paragraphs 0006 and 0026 of the published application are amended herein to rectify this. No new matter is added by this amendment. Withdrawal of the objection is requested.

On the merits, the office action rejects claims 1-17 and 19-53 under 35 U.S.C. 103(a) as unpatentable over Van Rietschote (US patent 6,757,778, hereinafter "Van Rietschote") in view of DeKoning (US Patent 6,769,022, hereinafter "DeKoning"). Reconsideration of the rejections in view of the instant amendments is respectfully requested.

As an initial matter, independent claims 1, 20, 33 and 42 have been amended to recite that first virtualization switch and the new virtualization switch are geographically distributed. This is an important distinction as these claims further recite, either originally or as amended herein, that the data manager automatically configures the new virtualization switches by applying volume parameters of the original virtualization switch to each new virtualization switch added to the cluster. It is respectfully submitted that the relied upon portions of van Rietschote fail to teach such sharing of volume parameters by geographically distributed virtualization switches. Accordingly, withdrawal of the rejections of the claims 1, 20, 33 and 42 is respectfully requested. Claims 2-7, 9-17, 21-23, 24-32, 34-41, and 42-50 which depend from one of these allowable base claims are allowable therewith.

With respect to the RESPONSE TO ARGUMENTS SECTION of the office action, reconsideration of the additional analysis included therein by the Examiner is respectfully requested in view of the following remarks.

Initially, the office action alleges that the van Rietschote's storage management system 24 is the same as the management engine 285 of the instant application. This assertion is respectfully traversed. The storage management system 24 of van Rietschote provides virtual storage devices for use by an operating system. And the storage management system 24 is a software layer which operates between an operating system and physical hardware.

"...The storage management system 24 is a software layer which operates between the operating system 14 and the physical hardware (e.g. the processing hardware 26, the network hardware 28, and the physical storage devices 30A-30B)..."(van Rietschote col. 3 lines 8-13).

Thus in view of this teaching the storage management system 24 of van Rietschote may at best be interpreted as the virtualization switch of the instant claims but it is not the management engine 285. As contemplated by the instant claims, and as recited, the management engine 285 is used to manage something similar to the storage management system 24 of van Rietschote. Thus it is submitted they are not the same.

The office action also alleges that the remote management interface 32 is used to manage a cluster of disks. While it is agreed that van Rietschote indeed teaches a remote management interface 32 which directly interfaces with the storage management system 24, it is respectfully submitted that the management interface 32 is only capable of configuring physical storage devices, and is not capable of reconfiguring the setting of virtual volumes.

"...the computing system 10 may use the remote management interface 32 to communicate with the storage management components to reconfigure the physical storage devices 30A-30B for the computing system 10 while keeping the virtual storage unchanged relative to the operating system..." (van Rietschote col. 9 line 66 - col. 10 line 6).

Accordingly, contrary to the assertion in the office action management interface 32 does not undertake the reconfiguration of settings of virtual volumes.

Furthermore, it is respectfully submitted that van Rietschote does not teach how the remote management interface 32 could manage or configure virtual volumes of a cluster of virtualization switches. Specifically, the remote management interface 32 does not execute the tasks that include at least: creating virtual volumes to be managed by a virtual switch; communicating with a virtualization switch that has been added to a cluster; and synchronizing the newly added virtualization switches with configurations of other virtualization switches in the cluster, as recited by the present claims.

In addition, as mentioned above the remote management interface 32 is directly coupled to the storage management system 24. In contrast, the management engine of the Application communicates with a cluster of virtual switches through a network, i.e., the management engine is indirectly coupled to the cluster as the virtualization switches in a cluster may be geographically distributed (Application, Fig. 2).

With respect to the rejection of claims 33 and 52, the office action points alleges that the step of "entering management parameters" and "synchronizing said volume parameters of said first virtualization switch with said volume parameters of said new virtualization switch" are software-based and can be performed by the volume manager 36 in response to requests received through the remote management interface 32 of van Rietschote. This allegation is respectfully traversed.

In the instant application, the steps of "synchronizing said volume parameters..." is automatically performed by the management engine 285. One of the main objectives of the present invention is to reduce the time required for a user to configure and manage a cluster of

virtualization switches. Trying to configure a cluster of virtualization switches using the management interface 32 of van Rietschote, would require a user to individually set each of the virtualization switches. This task includes, for each switch in the cluster, creating virtual volumes, entering management parameters, and setting the physical storage devices according to the volume attributes. The task of creating single virtual volume by itself requires: selecting storage devices to be included in the virtual volume, determining the type of the virtual volume, exposing the virtual volume on the virtualization switch, and configuring the virtual volumes. Therefore, configuration and creation of multiple virtual volumes in a cluster having many virtualization switches is a tedious and time consuming task.

In direct contrast, the step of "synchronizing said volume parameters..." performed by the management engine eliminates the need to configure each new virtualization switch added to the cluster. Specifically, the user is required to define a virtual volume only for a single (first) switch in the cluster and these parameters are synchronized which each new virtualization switch added to the cluster. This step is not performed by the method and system disclosed by van Rietschote.

With respect to the reliance on DeKoning, for teaching a GUI for configuring and monitoring a network device, it is agreed that DeKoning discloses a GUI that included in a management station for managing a storage network device. However, DeKoning, in fact, indicates that the GUI has two purposes: visualizing the association of the storage systems and other devices on the network and displaying the physical configuration and status of devices (DeKoning col. 2 lines 52-58). Specifically, DeKoning does not disclose how "configuration operations" including the creation of and configuration of the virtual volumes are performed by the GUI disclosed by DeKoning.

Finally, the Examiner reiterates the argument that the management engine 285 of the instant application is same as van Rietschote's storage management system 24. Again, it is submitted that this interpretation is incorrect. Once more, it is respectfully submitted that this interpretation is incorrect. As discussed above, the operation of storage management system 24 is at best understood as the operation of the virtualization switch and not as the operation of the management engine of the present claims. Furthermore, the storage management system of van Rietschote does not teach or suggest all any of the features allowing the configuration and management of a cluster of virtualization switches.

Again, it is respectfully submitted that the relied upon portions of the cited references, whether considered alone or in combination fail to teach each and every element of the instant claims as amended herein. Accordingly, claims 1, 20, 33, and 42 patentably distinguish over the relied upon portions of the cited references and are allowable. 2-7, 9-17, 21-23, 24-32, 34-41, and 42-50 which depend from one of these allowable base claims are allowable therewith.

CONCLUSION

In view of the above amendments and remarks, it is believed that claims 1-7, 9-17, 19-23 and 25-50 are in condition for allowance. Passage of this case to allowance is earnestly solicited.

Any fee due with this paper, may be charged on Deposit Account 50-1290.

Respectfully submitted,

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